that some new kind of implement altogether is needed in order to get the best out of this engine. Experiments are sadly needed on this problem. None of the agricultural experiment stations are taking the matter up at present because of the cost and other difficulties, but it needs to be done.

None of these difficulties are insuperable; the various research institutions which now exist in this country can attack the technical problems with considerable hope of success. The economic problems, however, require different treatment; above all they require to be approached from the point of view of the business man rather than from that of the party politician.

The first thing needed is to decide the importance of home-grown food: whether it is vitally important to the community or simply highly desirable. If it is only desirable, things can be left as they are, because agencies are already at work that will take the farmer so far as he feels disposed to go with present high costs of production and the risk of a slump in prices in 1917. If, on the other hand, a large supply of home-grown food is vitally important, then our present methods must be modified so as to aim at maximum-crop production regardless of possible low prices in 1917. At present the farmer is invited to bear the whole of this risk, and with the best will in the world many feel that he cannot do so; it is lack not of patriotism, but of capital that bars the way. The remedy might, and possibly would, involve making agriculture a controlled industry, but, at any rate, it would enable big unified schemes of crop production to be put into operation.

E. J. RUSSELL.

THE JEWELRY TRADE IN WAR-TIME.

THE jewelry trade is very largely one of luxury, and consequently serves as an extremely sensitive indicator of the kind of weather the barque of State has encountered. In the bright days of prosperity people are apt to buy jewels: in the dark days of adversity they are no less apt to sell or pawn them. It is not surprising that at the outbreak of war even the most optimistic of jewellers were filled with the gloomiest forebodings as to the fate the future held in store for their business unless hostilities were soon brought to a satisfactory close. The war has, however, lasted far longer than was anticipated at the beginning by all save a few with exceptional depth of knowledge, and it is possible now to ascertain how far those forebodings were fulfilled.

The question, "What is the state of the jewelry trade in days of war?" may, as regards the United States and, to some extent, Great Britain, be answered from the report on the "Production of Precious Stones for the year 1915," which, as in former years, has been contributed to *Mineral Industry*[1] by the well-known gem-expert, Dr. G. F. Kunz. The answer agrees with what is within common knowledge. The exceptional prosperity which the war has brought to areas engaged in the manufacture of munitions is reflected in the trade in precious stones done there. Thus, we read that in May, 1916—Dr. Kunz does not adhere rigidly to the year with which he is supposed to deal—upwards of five million dollars' worth of precious stones were imported into the United States—nearly three times the amount in the corresponding month of the previous year; in fact, all records were broken, even for the "boom" period of 1906.

Again, as regards our own country, it is stated:—

> It is worth noting as one of the curious effects of the war in London trade that the present demand for cheap diamond rings, such as are sold by East End jewellers, is phenomenally large. This is due to the exceptionally high wages earned by many British workers in the special industries, and also to their inclination toward free spending of their money. On the other hand, the demand for the larger diamonds has fallen off in England, since the wealthy classes have suffered a very considerable decline of income, due to industrial derangement and, above all, to heavy taxation. In Birmingham also the trade in low-priced diamond rings is exceedingly brisk.

Whether the picture thus outlined is strictly true for Great Britain as a whole we question. We believe that there is a great shortage of labour, not only owing to the requirements of the Army, but because so many of the skilled workers have been drafted into factories, their training having been found to fit them for many of the delicate operations in the manufacture of munitions. Nevertheless, the jewellers will perhaps go so far as to admit that things are very much better at this stage of the war than might have been anticipated beforehand.

Since diamonds are of such great importance for working the hard steels largely used in munitions, stringent precautions are taken by Great Britain to prevent stones, either cut or rough, from falling into hostile hands. Dr. Kunz prints the guarantees, to the effect that the diamonds will not be exported, directly or indirectly, to any country at war with Great Britain, which before the release of the package in question have to be signed before the British Consul-General by importers into the United States.

The report consists of two parts, each of about the same length, the first dealing with general points, and the second with particular species of precious stones. We notice in the former many interesting or curious points in addition to those already referred to. Thus, we are told that before the war much attention was being given in Paris, Vienna, and Berlin to colour-harmony in the wearing of jewels; apparently not in London—are we therefore to infer that a lower degree of taste prevails there? The lozenge-shape of cutting so popular for emeralds has been applied to diamonds with good results. The famous gem-district at Pala, San Diego County, California, has yielded magnificent crystals of rubellite weighing as much as 2 to 4 lb. each. Dr. Kunz boasts that the United States to-day possesses greater collections of precious stones than any other nation, and

---

[1] Vol. xxiv., pp. 591-613, 1916. (New York: McGraw-Hill Book Company, Inc.; London: Hill Publishing Co., Ltd.)

© 1916 Nature Publishing Group

instances the collections in the American Museum of Natural History at New York, the Field Museum at Chicago, the National Museum at Washington, the New York State Museum at Albany, the Golden Gate Museum at San Francisco, and the Public Museum at Oakland. It is certainly an extensive list, but possibly the collections in London and Edinburgh will, for real scientific interest, bear comparison with any of them.

As an indication of trade conditions it is mentioned that the demand for diamonds has increased so much that by February of this year the Diamond Syndicate had advanced the price for rough stones about 40 per cent., and of cut stones between a carat and 5 carats in weight about 21 per cent. Small stones under a carat in size were scarcely affected, no doubt in order to meet the competition of the stones, which are nearly always small, from the fields in what was German South-West Africa. It is stated that many diamond-cutting establishments have been opened in London by Belgian refugees.

The omission of ruby from the species of precious stones considered is significant; we believe its fortunes as a gem have been severely affected by the comparative success of the synthetic stone. Sapphires, on the other hand, have prospered, and prices have risen. The trade in the Queensland stones appears to have been brought to a standstill by the war, because all the stones were cut in Germany. Hitherto comparatively little in detail has been known of the famous emerald mines in Colombia; it is interesting, therefore, to learn that a careful survey of the district has recently been published by Dr. J. E. Pogue.[2]

STATE AID FOR SCIENTIFIC RESEARCH.

AT the Institution of Civil Engineers on Friday last, December 1, the Marquess of Crewe, Chairman of the Committee of the Privy Council for Scientific and Industrial Research, with members of the Committee and of the Advisory Council to the Committee, received a deputation from the Board of Scientific Societies. Sir J. J. Thomson, president of the Royal Society, in introducing the deputation, referred to the functions of the board, which had been formed to promote co-operation between those interested respectively in pure and applied science. The deputation wished to urge the necessity for further grants in aid of research, both in pure science and in its applications to industry. It was often difficult to foresee, at the time a research in pure science was carried on, what its ultimate applications might be. The Röntgen rays, discovered incidentally in a purely physical investigation, but now of inestimable value in connection with surgery, furnished an instance. Therefore men who devoted themselves to such researches, with little prospect of immediate personal benefit, should receive from the State sufficient assistance to enable them to do their work in comfort. The neglect of pure science might be compared with the ploughing and manuring of a piece of land, followed by an omission to sow any seed.

Sir M. FitzMaurice, president of the Institution of Civil Engineers, supported Sir J. J. Thomson, and expressed the hope that research would be conducted in a more systematic manner in the future than it had been in the past.

Prof. H. B. Baker referred to the importance of chemical research in industry. It would be found that chemical processes formed the basis of many of the most important national industries.

Lord Crewe, replying as Chairman of the Committee of the Privy Council for Scientific and Industrial Research, said that increasing attention had been lately devoted to the industrial aspects of research. It had now become evident that the work of the Advisory Council could no longer be regarded as an annexe to the Board of Education. The Government had therefore decided to form a new department, presided over by the Committee of Council. The Government also recognised the need for further financial assistance for this work, and desired to encourage the application of research to the leading industries of the country on a large scale. It was clear that wealthy industries, which might naturally expect to derive direct profit from researches in their province, should be willing to defray part of the expenditure involved, and the Council was endeavouring to bring about a scheme of co-operation with the chief industries for developing researches of this nature. What they desired to see was the formation of trade associations which would survey the conditions in their respective industries and decide upon and initiate desirable researches. Such associations should work under carefully selected committees of direction, including some leaders in the industry concerned, men of science, and also representatives of the skilled workers in the different trades.

In addition to industrial research of this kind, of direct and immediate value to industry, there would also be other broader researches of great national value, but not offering immediate prospects of profits to individuals, which would form fit subjects for Government support. In view of the varied conditions under which co-operation in these different classes of researches would be carried on, it was difficult to assess the amount of money required in any particular year, and in the circumstances it was impracticable to proceed by annual estimate. The Chancellor of the Exchequer was therefore prepared to advise the Government to devote a large sum to cover operations during the next five years, on a scale which would enable them to spend four, and perhaps five, times as much on such co-operative industrial research as had been spent for the whole purposes of research by Vote hitherto.

The Chancellor of the Exchequer had also decided that, in order to encourage firms to make generous contributions, money devoted to research, on specified terms, will be regarded as "working expenses," and will thus be free from

---

[2] "The Emerald Deposits of Muzo, Colombia." Bull. Amer. Inst. Min. Eng., May, 1916.

© 1916 Nature Publishing Group